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Chai Wah Wu

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EXAMINER

STERRETT, JONATHAN G

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/725,382	<b>Applicant(s)</b> WU, CHAI WAH	
	<b>Examiner</b> JONATHAN G. STERRETT	<b>Art Unit</b> 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 28-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 28-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This **Final Office Action** is responsive to 20 August 2009. Currently **Claims 1 and 28-52** are pending.

### **Response to Argument**

The applicants arguments have been fully considered with respect to the applicant's argument regarding the previous restriction and upon consideration of the arguments and review of the claims, the examiner is withdrawing the restriction requirements.

The remaining arguments are not persuasive.

The applicant argues that Muralidhar fails to teach "bins" where data is stored.

The examiner respectfully disagrees.

Muralidhar teaches the storing of data in a database. It is known in the art that databases store data in individual records (i.e. a bin for each number). Thus Muralidhar teaches the storing of data in bins. The remainder of the argument include limitations that are not in the claims.

The applicant argues that Muralidhar only teaches numerical values and not qualitative values.

The examiner respectfully disagrees.

First, there is no recitation in the claim that requires the use of non-numerical values. Additionally the fact that the perturbing mechanism has a statistical parameter with known values suggests that numerical values are being manipulated to provide security and anonymity.

The applicant argues that Muralidhar's perturbing of data values fails to teach the limitations of an indicator vector being perturbed.

The examiner respectfully disagrees.

Muralidhar teaches that the personal identifying information association with a person can be perturbed so as to provide anonymity of that person and yet still preserve the relationships between the data. Thus an individual is taught as having more than one data point. (The table on page 1400 shows a number of data points per each person – this is a “vector” in that it contains a series of data points per each person).

Office Notice was taken that the use of surveys is old and well known, where those surveys provide multiple answers to a series of questions. Muralidhar teaches (Figure 1 page 1400 and column 1) that a series of data (i.e. a vector) corresponding to an individual may be perturbed to provide anonymity and security of that information. The combination of what is known in the art about surveys and Muralidhar provides a predictable result in making anonymous the results of surveys through a perturbation technique.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 39-41, 42-44, 45-47, 48-49, 50, 51-52** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

**Claims 48 and 50** are rejected under 35 U.S.C. 101 based on Supreme Court precedent, and recent Federal Circuit decisions, the Office's guidance to examiners is that a § 101 process must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or materials) to a different state or thing. *Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780,787-88 (1876).

An example of a method claim that would not qualify as a statutory process would be a claim that recited purely mental steps. Thus, to qualify as a § 101 statutory process, the claim should positively recite the other statutory class (the thing or product) to which it is tied, for example by identifying the apparatus that accomplishes the method steps, or positively recite the subject matter that is being transformed, for example by identifying the material that is being changed to a different state.

Here, applicant's method steps, fail the first prong of the new Federal Circuit decision since they are not tied to another statutory class and can be performed without the use of a particular apparatus. Thus, **Claim 48 and 50** are non-statutory. Claim 49 depends on Claim 48 and is thus not statutory for the reason given for claim 48.

**Claim 39** is an apparatus that comprises "at least one of" several elements. These elements can be considered software per se, not tangibly embodied on computer readable medium. Software per se is considered printed matter and is not statutory under 35 USC 101. **Claims 40, 41 and 51** are similarly not statutory for the reasons given for Claim 39.

**Claim 42**, similar to Claim 39, is also a system comprising "at least one of" several "means for" elements that can be considered software per se. This claim is also not statutory for the same reasons given above for Claim 39. The dependent claims 43 and 44 are not statutory for the reasons given for Claim 42.

**Claim 45** is a signal bearing storage medium, i.e. a carrier wave. A carrier wave is not a statutory class and thus the claim is not statutory under 35 USC 101. Claims 46 and 47 depend on Claim 45 and are similarly not statutory. **Claim 52** is a signal bearing storage medium and is similarly not statutory.

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***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 42-44** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 42** recites means for in the body of the claim. It is unclear whether the applicant intends to invoke 112 6<sup>th</sup> paragraph. See MPEP 2181. Claims 43 and 44 depend on Claim 42 and are also indefinite since they inherit the deficiencies of Claim 42.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1 and 28-52** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Muralidhar** et al; "A General Additive Data Perturbation Method for Database Security", (C) 1999 Institute for Operations Research and the Management Sciences, Management Science / Vol. 45, No. 10, pp.1399-1415 . (hereinafter **Muralidhar**)

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Regarding **Claim 1**, Muralidhar teaches:

A computerized method of conducting a survey, said method comprising:

**establishing, for at least one question in said survey, establishing a bin, as represented in a memory of a computer, for each of a possible response to said question;**

page 1408 section 5 and 5.1.

**establishing, for each said bin, a perturbing mechanism, executed by a processor on said computer, that perturbs a content of said bin, said perturbing mechanism having a statistical parameter with a known value;**

page 1400 column 1 para 1, column 2 para 4, page 1401 para 2.1

Official Notice is taken that it is old and well known in the art to provide surveys to respondents such that the respondent responds to the surveys by indicating a response to each question. Thus a survey is known to have a series of questions with multiple possible answers where a person indicates their choice (out of several choices) for a series of questions.

Muralidhar teaches that data stored in a database can be perturbed statistically to hide the confidential information that corresponds to an individual. Thus an individual has a multiple number of characteristics that reflect their personal and confidential information (e.g. home equity, investments, other financial information). Muralidhar



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teaches that the bank gathers this personal information (page 1400 column 1 top para) and that there is a need to secure and anonymize this information, because it pertains to individuals. Table 1 shows 5 attributes relating to an individual (i.e. a vector). Since it is known that a person will answer a survey of multiple questions where each question has multiple possible answers, one of ordinary skill in the art would modify the teachings of Muralidhar, regarding the storing of multiple pieces of an individual's personal information (i.e. a vector as shown in Table 1 on page 1400) to modify the results of a person's survey, where the individual answers are perturbed using a statistical parameter), because it would have provided a predictable result in having survey results which were made anonymous through the perturbation techniques of Muralidhar.

Regarding **Claim 28**, Muralidhar teaches

**generating a perturbed indicator vector that represents a respondent's response for said question, said perturbed indicator vector comprising an information structure including the contents of all bins of said question after each of the bins has been perturbed and said respondent has selected one or more said possible responses,**

page 1402 column 1 para 1, Muralidhar teaches perturbing cells in a database to form a new cell (i.e. vector) based on the information in the database that has been additively perturbed (i.e. a random number that is a statistical parameter has been added to it. See also page 1408 section 5.

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Regarding **Claim 29**, Muralidhar teaches

**wherein said perturbing mechanism comprises a random number generator and said known statistical parameter value comprises a mean value of said random number generator,**

see before – particularly page 1401 section 2.1

Regarding **Claim 30**, Muralidhar teaches

**wherein said generating the perturbed indicator vector comprises respectively adding numbers from the perturbing mechanism to the contents of the bins;**

as before, Muralidhar teaches additive perturbation, where a random number is added to the raw data to provide a perturbed data point. Also see page 1404 section 3.2.1.

Regarding **Claims 31 and 32**:

Further, Muralidhar teaches that the perturbation can result in various quartiles (i.e. various dispersion in the data), Muralidhar does not teach an upper or lower bound after perturbation, as per:

**if contents of a bin exceed an upper bound after perturbation, said contents are clamped to said upper bound;**

**if contents of a bins bin are below a lower bound after perturbation, said contents are clamped to said lower bound**

Even assuming arguendo that Muralidhar taught an upper and lower bound for clamping after perturbation, Official Notice that it is old and well known in the art to remove outliers in data (i.e. to clamp to an upper or lower bound) and this would have been obvious to one of ordinary skill in the art, and such would have provided a predictable result in combination with the teachings of Muralidhar, by limiting the dispersion of the data once the statistically based perturbation is performed.

Regarding **Claims 33 and 34**, Muralidhar teaches using an additive perturbation method to make data stored as a number of data points (i.e. attributes or bins) in a database,. (i.e. of a computer system). Muralidhar teaches perturbing data after it has been received and stored as various attributes.

Official Notice is taken that it is old and well known in the art to provide surveys to respondents such that the respondent responds to the surveys by indicating a response to each question as per

**setting up a survey question by generating a medium with a plurality of markable areas for each possible response; and pre-marking a random number of said markable areas for each said possible response**

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**having a respondent respond to the survey question by adding a mark to any of remaining non pre-marked markable areas, if any markable areas remain after said pre-marking, of the plurality of markable areas for the possible response that corresponds to a desired response to the question;**

Since Muralidhar teaches storing of data in a database where the attributes represent individual customer data, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify these teachings to include where the data comes from a survey, because it would have provided a predictable response by storing the data from the survey in a database. (i.e. **generating a perturbed indicator vector by counting a number of marked areas for each response**)

While Muralidhar suggests and teaches data in a database relating to an individual's attributes (Muralidhar explicitly teaches a banking database with individual customer information) and Muralidhar teaches and suggests that the customer data may be made anonymous by an additive perturbing approach, Muralidhar does not teach perturbing the data before it is stored in the database by perturbing the actual answers to the survey questionnaire before they are answered by the respondent.

However, since it is shown in the art that customer data comes from surveys and that this data once stored in a database can be perturbed to preserve anonymity, it

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would have been obvious to one of ordinary skill in the art to pre-perturb the answers to survey questions (i.e. by premarking the possible answers), because it would have been obvious to try the step of perturbing the data prior to solicitation from an individual, with the predictable result that the answers to the surveys, as a whole, would have been perturbed. The concepts of survey data from questionnaires and perturbing data that is stored, such as would be provided from those questionnaires, are known techniques in the art. The concept of perturbing data that relates to customer attributes, where privacy is a concern, is old and well known. One of ordinary skill in the art would have found it obvious to try the step of perturbing possible responses to survey questions, prior to the survey being given to an individual, since there is an established need to gather individual data that is useful in understanding customer demographics for marketing and analytical purposes and yet require some kind of masking to protect privacy.

Regarding **Claims 35-37**, Muralidhar teaches:

**for a plurality of responses for a question in said survey received as input data to said computer, analyzing the bins in said perturbed indicator vector to provide an estimation of a distribution of responses, wherein said analyzing comprises:**

**for said question being analyzed, calculating an average of each perturbed bin in said question, wherein said perturbing mechanism comprises a random number generator and said known statistical parameter comprises a mean value, said analyzing further comprising for each said perturbed bin in said question, subtracting said mean value of said perturbing mechanism associated with said bin.**

Page 1402 para 2.2.1, Muralidhar calculates an average (i.e. variance) of each perturbed data point (i.e. bin in said question) by subtracting the Y (i.e. perturbed attribute) from the X (i.e. the actual value).

**Claims 38-52** recite similar limitations to those addressed by the rejection of **claims 1 and 29-37** above, and are therefore rejected under the same rationale.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wikipedia – Statistical Surveys

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beth Boswell can be reached on 571-272-6737. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS 1-28-2010

/Jonathan G. Sterrett/

Primary Examiner, Art Unit 3623